

CLAIM AMENDMENTS

Claim Amendment Summary

Claims pending

- At time of the Action: Claims 1-34.
- After this Response: Claims 1, 3-9, 11-41.

Canceled or Withdrawn claims: 2 and 10.

Amended claims: 1, 5, 6, 8, 9, 11-14, 16-24, 28, and 34.

New claims: 35-41.

Claims:

1. **(CURRENTLY AMENDED)** A method for concealing data within a digital signal, the method comprising:

receiving a first data pattern of discrete values and a second data pattern of discrete values;

imposing a discrete value of the second data pattern over one or more values of the first data pattern;

encoding a third data pattern into the digital signal, wherein such third data pattern is the result of the imposing.

2. **(CANCELED)**

1 3. **(ORIGINAL)** A method as recited in claim 1, wherein the imposing
2 comprises performing a Boolean operation with a discrete value of the second data
3 pattern and one or more values of the first data pattern.

4
5 4. **(ORIGINAL)** A method as recited in claim 1, wherein the imposing
6 comprises XORing a discrete value of the second data pattern with one or more
7 values of the first data pattern.

8
9 5. **(CURRENTLY AMENDED)** A method as recited in claim 1, wherein
10 a pattern of discrete values may be encoded into the digital signal in one of
11 multiple discrete states;

12 the imposing comprises encoding one or more values of the first data
13 pattern into the digital signal into a state that indicates a discrete value of the
14 second data pattern.

15
16 6. **(CURRENTLY AMENDED)** A method as recited in claim 1, wherein
17 the digital signal is ~~an digital audio~~ a digital audio signal.

18
19 7. **(ORIGINAL)** A method as recited in claim 1, wherein the first data
20 pattern is a watermark.

1 8. (CURRENTLY AMENDED) A ~~computer-readable medium having~~
2 ~~computer-executable instructions that, when executed by a computer, performs the~~
3 ~~method as recited in claim 1~~ computer having a computer-readable medium as
4 recited in claim 18.

5
6 9. (CURRENTLY AMENDED) A method for revealing a covert data
7 pattern of discrete values from an encoded data pattern of discrete values in a
8 digital signal, the method comprising:

9 receiving ~~the encoded data pattern~~ a digital signal, the signal having an
10 watermark encoded therein, the watermark being an encoded data pattern
11 representing multiple data patterns comprising an original watermark data pattern
12 and a covert data pattern;

13 extracting a discrete value of the covert data pattern from ~~one or more a~~
14 plurality of values of the encoded data pattern.

15
16 10. (CANCELED)

17
18 11. (CURRENTLY AMENDED) A method as recited in claim 9, wherein
19 ~~a pattern of discrete values may be~~ the encoded data pattern of discrete
20 values is encoded into the signal in one of multiple discrete states;

21 the extracting comprises decoding a discrete value of the covert data pattern
22 from the digital signal based upon a state of a one or more discrete values of the
23 encoded data pattern.
24
25

12. (CURRENTLY AMENDED) A method as recited in claim 9, wherein the digital signal is ~~an digital audio~~ a digital audio signal.

13. (CURRENTLY AMENDED) A ~~computer-readable medium having computer-executable instructions that, when executed by a computer, performs the method as recited in claim 9,~~ computer having a computer-readable medium as recited in claim 19.

14. (CURRENTLY AMENDED) A method for encoding a watermark with a covert message into a digital audio signal, wherein binary bits of the watermark may be encoded into the signal in multiple states, the method comprising:
encoding one or more multiple bits of the watermark into the digital signal into a state that indicates a discrete value of the covert message.

15. (ORIGINAL) A method as recited in claim 14, wherein the multiple states are positive or negative modifications to magnitudes of one or more subbands in the frequency spectrum of a sample of the signal.

16. (CURRENTLY AMENDED) A method for imposing a covert message into a watermark, the method comprising:
generating multiple watermarks;
~~assigning a watermark to each of possible discrete value for a portion of the covert message;~~
~~selecting a watermark that corresponds to an actual discrete value of a specific portion of the covert message;~~

1 assigning each of the multiple watermarks to each of the possible discrete
2 values for at least a portion of the covert message;

3 selecting a watermark that corresponds to an actual discrete value of at least
4 a specific portion of the covert message;

5 encoding the selected watermark into the signal.

6
7 **17. (CURRENTLY AMENDED)** A method as recited in claim 16, wherein
8 size of all portions of the covert message is N bits long;
9 ~~quantity~~ number of the multiple watermarks is 2^N .

10
11 **18. (CURRENTLY AMENDED)** A computer-readable medium having
12 computer-executable instructions that, when executed by a computer, perform a
13 method for ~~for~~ concealing data within a digital signal, the method comprising:

14 receiving a first data pattern of discrete values and a second data pattern of
15 discrete values;

16 imposing a discrete value of the second data pattern over one or more
17 values of the first data pattern;

18 encoding a third data pattern into the digital signal, wherein such third data
19 pattern is the result of the imposing.

1 19. (CURRENTLY AMENDED) A computer-readable medium having
2 computer-executable instructions that, when executed by a computer, perform a
3 method for revealing a covert data pattern of discrete values from an encoded data
4 pattern of discrete values in a digital signal, the method comprising:

5 ~~receiving the encoded data pattern;~~
6 ~~extracting a discrete value of the covert data pattern from one or more~~
7 ~~values of the encoded data pattern~~
8 receiving a digital signal, the signal having an watermark encoded therein,
9 the watermark being an encoded data pattern representing multiple data patterns
10 comprising an original watermark data pattern and a covert data pattern;
11 extracting a discrete value of the covert data pattern from a plurality of
12 values of the encoded data pattern.

13
14 20. (CURRENTLY AMENDED) An apparatus comprising:

15 a processor;

16 a covert-channel-encoder executable on the processor to:

17 receive a first data pattern of discrete values and a second data
18 pattern of discrete values;

19 impose a discrete value of the second data pattern over one or more
20 values of the first data pattern;

21 encode a third data pattern into a digital signal, which third data
22 pattern is based upon the result of the imposing ~~such imposing into a digital~~
23 ~~signal.~~

1 21. (CURRENTLY AMENDED) An apparatus comprising:

2 a processor;

3 a covert-channel-decoder executable on the processor to:

4 ~~receive a encoded data pattern within a digital signal;~~

5 ~~extract a discrete value of a covert data pattern from one or more~~
6 ~~values of the encoded data pattern~~

7 receive a digital signal, the signal having an watermark encoded
8 therein, the watermark being an encoded data pattern representing multiple
9 data patterns comprising an original watermark data pattern and a covert
10 data pattern;

11 extract a discrete value of the covert data pattern from a plurality of
12 values of the encoded data pattern.

13
14 22. (CURRENTLY AMENDED) A data encoding system for concealing
15 data within a digital signal, the system comprising:

16 a receiver for receiving a first data pattern of discrete values and a second
17 data pattern of discrete values;

18 an imposer coupled to such receiver, the imposer for imposing a discrete
19 value of the second data pattern over one or more values of the first data pattern;

20 an encoder coupled to the receiver and the imposer, the encoder for
21 inserting within the digital signal one or more values of a third data pattern which
22 are results of the imposer's imposing a discrete value of the second data pattern
23 over one or more values of the first data pattern.

1 23. (CURRENTLY AMENDED) An operating system embodied on a
2 computer-readable medium having at least one program module comprising an
3 encoding system as recited in claim 22.

4
5 24. (CURRENTLY AMENDED) A marked signal embodied on a
6 computer-readable medium, the marked signal having ~~with~~ an encoded data
7 channel therein, wherein such encoded data channel has a covert data channel
8 imposed therein, the marked signal generated in accordance with the following
9 acts:

10 receiving an original watermark data pattern of discrete values and a covert
11 data pattern of discrete values;

12 imposing a discrete value of the covert data pattern over one or more values
13 of the original watermark data pattern;

14 encoding results of the imposing within an unmarked signal to produce the
15 marked signal.

16
17 25. (ORIGINAL) A marked signal as recited in claim 24, wherein the
18 imposing comprises performing a Boolean operation with a discrete value of the
19 second data pattern and one or more values of the first data pattern.

20
21 26. (ORIGINAL) A marked signal as recited in claim 24, wherein the
22 imposing comprises XORing a discrete value of the second data pattern with one
23 or more values of the first data pattern.
24
25

1 27. (ORIGINAL) A marked signal as recited in claim 24, wherein
2 a pattern of discrete values may be encoded into the signal in one of
3 multiple discrete states;

4 the imposing comprises encoding one or more values of the first data
5 pattern into the digital signal into a state that indicates a discrete value of the
6 second data pattern.

7
8 28. (CURRENTLY AMENDED) A marked signal as recited in claim 24,
9 wherein the ~~digital~~ marked signal is ~~an digital audio~~ a digital audio signal.

10
11 29. (ORIGINAL) A marked signal as recited in claim 24, wherein the
12 original data pattern is a watermark.

13
14 30. (ORIGINAL) A method for concealing data within a digital signal,
15 the method comprising:

16 receiving a set of data having an original order;

17 permuting the set of data so that it is in a different order than the original;

18 encoding the permuted set of data into the digital signal.

19
20 31. (ORIGINAL) A method as recited in claim 30, wherein the
21 permuting utilizes a permutation table to determine the order in which to permute
22 the set of data.

1 32. (ORIGINAL) A method as recited in claim 30, where in the set of
2 data is a portion of a watermark.

3
4 33. (ORIGINAL) A computer-readable medium having computer-
5 executable instructions that, when executed by a computer, perform a method for
6 concealing data within a digital signal, the method comprising:

7 receiving a set of data having an original order;

8 permuting the set of data so that it is in a different order than the original;

9 encoding the permuted set of data into the digital signal.

10
11 34. (CURRENTLY AMENDED) A modulated signal embodied on a
12 computer-readable medium, the modulated signal having with an permuted data a
13 permuted data channel encoded therein, the signal generated in accordance with
14 the following acts:

15 receiving a set of data having an original order;

16 permuting the set of data so that it is in a different order than the original;

17 encoding the permuted set of data into a digital signal to produce the
18 modulated signal with ~~an permuted data~~ a permuted data channel encoded therein.

1 **35. (NEW)** A method for concealing data within a digital signal,
2 the method comprising:

3 receiving a first data pattern of discrete values and a second data pattern of
4 discrete values;

5 imposing a discrete value of the second data pattern on a plurality of values
6 of the first data pattern, wherein the imposing encodes a third data pattern into the
7 digital signal.

8
9 **36. (NEW)** A method as recited in claim 35, wherein the imposing
10 comprises performing a Boolean operation with a discrete value of the second data
11 pattern and a plurality of values of the first data pattern.

12
13 **37. (NEW)** A method as recited in claim 35, wherein the imposing
14 comprises XORing a discrete value of the second data pattern with a plurality of
15 values of the first data pattern.

16
17 **38. (NEW)** A method as recited in claim 35, wherein
18 a pattern of discrete values may be encoded into the digital signal in one of
19 multiple discrete states;

20 the imposing comprises encoding a plurality of values of the first data
21 pattern into the digital signal into a state that indicates a discrete value of the
22 second data pattern.

1 39. (NEW) A method as recited in claim 35, wherein the digital
2 signal is a digital audio signal.

3
4 40. (NEW) A method as recited in claim 35, wherein the first data
5 pattern is a watermark.

6
7 41. (NEW) A computer-readable medium having computer-
8 executable instructions that, when executed by a computer, performs the method
9 as recited in claim 35.

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